

Amendments to the Claims

This listing of claims will replace all prior versions, and listings of the claims in the application:

Listing of Claims:

1. (currently amended) A ~~novel~~ laser bruting machine, comprising: consist of (i)
a diamond holder 8-(ii), a setup device 3, &-(iii) and a processing device [[4;]] the
diamond holder 8-consist of including a stitching die [[6]], a magnetic die [[7]]
and a rough diamond [[5]]; the setup device 3 consist of including a CNC
interface, and a video system; and the processing device [[4]] consists of
including a CNC interface, a heat exchanger [[25]], a video system, a beam
delivery mechanism 26, a laser source [[27]], a RF-Q Switch driver [[28]], a
power supply [[29 &]] and a stabilizer.
2. (currently amended) A ~~novel~~ laser bruting machine as claimed in claim 1, wherein
a rough diamond [[5]] is stitched on [[the]] top of the stitching die [[6]] by
adhesive [[&]] and heat; the stitching die 6-along-with and the rough diamond
[[b is]] are fixed on top of magnetic die [[7]].
3. (currently amended) A ~~novel~~ laser bruting machine as claimed in claim 1, wherein
the CNC interface of the setup device 3-consists-of has a motorized X axis
positioner [[9]], a motorized rotatable platform [[11]], a motorized up[[/]] and
down positioner [[12]], drive cards 13,14,15, a control card, a computer 16,
monitor [[19]], three stepper motors, and a drive card power supply [[22]].

4. (currently amended) A [[novel]] laser bruting machine as claimed in claim[[s 1,]] 3, wherein
the motorized X axis positioner [[9]], the motorized rotatable platform [[11]], and
the motorized up[[/]] and down positioner [[b]] are driven by the stepper
motors.
5. (currently amended) A [[novel]] laser bruting machine as claimed in claim[[s 1,3]] 4, wherein
one end of each of the drive cards ~~13, 14 & 15~~ are is connected to the motorized
X-axis positioner [[9]], the motorized up[[/]] and down positioner [[12 &]] and
the motorized rotatable platform [[11]] respectively, [[&]] and the other end of
each of the drive cards ~~13, 14, 15~~ is connected to the drive card of the
computer [[16]] through [[37]] a pin connector; and the drive cards ~~13, 14, 15~~
are connected to the drive card power supply [[22]].
6. (currently amended) A [[novel]] laser bruting machine as claimed in claim[[s 3,4,]] 5
wherein
motion of the motorized X axis positioner [[9]], the motorized rotatable platform
[[11]], and the motorized up[[/]] and down positioner [[12]] is controlled by
the drive card [[placed]] disposed in the computer [[16]]; and limit switches
are provided to each end of the motorized X axis positioner [[9]], the
motorized rotatable platform [[11]], the motorized up[[/]] and down positioner
[[12]] to sense [[the]] home [[&]] and end positions.
7. (currently amended) A [[novel]] laser bruting machine as claimed in claim 1, wherein
the video system of the setup device [[3]] is connected to the computer ~~16 & it~~
~~consists of~~ and has an upper CCD camera [[17 &]] and a lower CCD camera
[[18]].

8. (currently amended) A [[novel]] laser bruting machine as claimed in claim [[1]] 3, wherein
- the CNC interface of the processing device ~~4 consists of~~ has a motorized Y-axis positioner [[30]], a motorized rotatable platform [[23]], a motorized X axis positioner [[31]], a computer [[21]], a monitor [[24]], CCTV [[32]], a Y drive card [[33]], an X drive card [[34]], a R drive card [[35]], a drive card power supply [[36]], three stepper motors, and a control card.
9. (currently amended) A [[novel]] laser bruting machine as claimed in claim 8, wherein the motorized Y-axis positioner [[30]], the motorized rotatable platform [[23]], and the motorized X axis positioner 31 are driven by stepper motors.
10. (currently amended) A [[novel]] laser bruting machine as claimed in claim[[s 8,]] 9, wherein
- one end of the Y drive card [[33]], the R drive card [[35 &]] and the X drive card 34 are connected to the motorized Y-axis positioner [[30]], the motorized rotatable platform [[23, &]] and the motorized X axis positioner [[31]] respectively and the other end of the Y drive card [[33]], the R drive card [[35]], the X drive card [[34]] are connected to the control card of the computer [[21]] through [[37]] a pin connector, the Y-drive card [[33]], the X drive card [[34]], and the R drive card 35 are connected to the drive card power supply [[36]].
11. (currently amended) A [[novel]] laser bruting machine as claimed in claim 8, wherein motion of the motorized Y-axis positioner [[30]], the motorized rotatable platform [[23]], the motorized X axis positioner [[31]] are controlled by the control card of the computer [[21]].

12. (currently amended) A [[novel]] laser bruting machine as claimed in claim 8, wherein displacement of the rough diamond [[5]] of the diamond holder [[8]] via the motorized rotatable platform [[23]] on the Y-axis and the X-axis is accomplished by the motorized Y-axis positioner [[30]] and the motorized X-axis positioner [[31]] respectively; the motorized Y-axis positioner [[30]] and the motorized X-axis positioner [[31]] are mounted in such a way that the motorized Y-axis positioner [[30]] travels on the motorized X-axis positioner [[31]].
13. (currently amended) A [[novel]] laser bruting machine as claimed in claim 8, wherein limit switches are provided to each end of the motorized Y axis positioner [[3]], the motorized X axis positioner [[31 &]] and the motorized rotatable platform [[23]] to sense the home [[&]] and end positions.
14. (currently amended) A [[novel]] laser bruting machine as claimed in claim 1, wherein the video system of the processing device [[4]] is connected to the computer 21 & ~~it consist of~~ and has an upper CCD camera [[52]] and a lower CCD camera [[53]].
15. (currently amended) A [[novel]] laser bruting machine as claimed in claim 1, wherein the heat exchanger [[25]] of the processing device [[4]] is connected to the power supply [[29]] and the FRQ-switch drive [[28]]; the digital temperature controller [[72,]] and LED's 49,50,51 of interlock controller for flow, level & temperature indication of de-ionized water, the pump on[[/]] and off knob [[62]], and the pump LED [[63]] are accommodated in the heat exchanger [[25]].

16. (currently amended) A [[novel]] laser bruting machine as claimed in claim[[s 1,]] 15, wherein

the heat exchanger ~~25 consist of~~ has a cooling system 37, and a chilling system 38, the cooling system [[37]] circulates de-ionized water while the chilling system [[38]] circulates water; [[In]] the cooling system [[37]] in port [[74]] of the heat exchanger [[25]] is connected to one end of a Teflon connector [[75]] via hose pipe [[82]] while the other two ends of the Teflon connector [[75]] are connected to out port [[76]] of laser head [[43]] and the out port 77 of the Q-switch [[42]] via hose pipes [[83,84]] respectively; out port [[78]] of the heat exchanger [[25]] is connected to one end of the Teflon connector [[79]] via the hose pipe [[85]] while the other two ends of the Teflon connector [[79]] are connected to the in port [[80]] of the laser head [[43]] and the in port [[81]] of the Q-switch [[42]] via hose pipes [[86,87]] respectively; the chilling system ~~38 consist of~~ has a chilling pump system [[48]]; the chilling pump system ~~48 consist of~~ has a split tank [[71]], and a chilling water tank [[70]]; the digital temperature controller [[73]] is connected to the chilling water tank [[70]]; the chilling out port [[88 &]] the chilling in port [[94]] of the heat exchanger [[25]] are connected to the chilling pump system [[48]]; the chilling out port [[88]] of the heat exchanger [[25]] is connected to the in port [[89]] of the chilling water tank [[70]] via the hose pipe [[95]] and the out port [[90]] of the chilling water tank [[70]] is connected to the in port [[91]] of the split tank 71 via hosepipe 96; the out port [[92]] of the split tank [[71]] is connected to the dual port [[93]] of the chilling water tank [[70]] via the hose pipe [[97]] and the other end of dual port [[93]] of the chilling water tank [[70]] is connected to the chilling in port 94 of the heat exchanger [[25]] via hose pipe [[98]].

17. (currently amended) A novel laser bruting machine as claimed in claim 1, wherein
a beam delivery mechanism [[26]] of the processing device ~~4~~ consists of has a
bruting process system [[54,]] and a girdle polishing system [[55]].
18. (currently amended) A [[novel]] laser bruting machine as claimed in claim 17,
wherein
the bruting process system ~~54~~ consists of has a sliding beam bender [[56]], a lower
beam bender [[57]], and a lower focusing device [[58]].
19. (currently amended) A [[novel]] laser bruting machine as claimed in claim[[s 17,]]
18, wherein
the girdle polishing system ~~55~~ consist of has an upper beam bender 59[[,]] and an
upper focusing device [[60]]; the sliding beam bender [[56]], the lower beam
bender [[57]] and the upper beam bender [[59]] are placed substantially 45°
with respect to the incoming laser beam; each of the beam benders ~~56,57,59~~
bends the laser beam [[at]] substantially 90°; the lower focusing device [[58]]
and the upper focusing device [[60]] focuses the incoming laser beam; the
lower focusing device [[58]] and the upper focusing device [[60]] have an
illuminating source to illuminate the rough diamond [[5]]; each illuminating
source of the lower focusing device [[58 &]] and the upper focusing device
[[60]] have a plurality of LED's.
20. (currently amended) A [[novel]] laser bruting machine as claimed in claim 1, wherein
the laser source ~~27~~ consist of has a back mirror [[40]], apertures [[41,41]], a
Q-switch [[42]], a laser head [[43]], a shutter [[44]], a polariser [[45]], a front
mirror 46 [[&]] and a beam expander [[47]].

21. (currently amended) A [[novel]] laser bruting machine as claimed in claim 1, wherein the RF Q Switch drive [[28]] is connected to the computer [[21]], the Q-Switch [[42&]] and the heat exchanger [[25]].
22. (currently amended) A [[novel]] laser bruting machine as claimed in claim 1, wherein a stabilizer is connected to the power supply [[29]]; a T.P. switch [[64]], a laser lamp on[[/]] and off toggle switch [[65]], a current setting unit [[68]], a push button on[[/]] and off switch [[67]] of the current setting unit [[68]], and a current variable knob [[69]] are ~~provided~~ connected to the power supply [[29]].
23. (currently amended) A [[novel]] laser bruting machine as claimed in claim[[s 3,]]8, [[17]] wherein the computers [[16&21]] are connected by LAN ~~and the computer program for bruting process system 54 & girdle polishing system 55 is substantially described in flow chart in accompanying figure.~~